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RICHMOND, VIRGINIA

To: Mr. E. M. Schaaf
From: E. A. Christopher
Subject: Coal Strength Evaluation

Date: April 8, 1974

Due to a high percentage of coal strength failures at the Manufacturing Center, a test was set up to evaluate the source of these failures. The initial test was set up to evaluate the following four parameters.

1. Ecreteur Return
2. Machine Speed
3. Primary Filler
4. Mark XIII versus Mark IX

Having concluded phase one of the testing program, it was determined that the first three parameters had no significant bearing on coal strength. When comparing the Mark XIII versus Mark IX, it was found that the Mark IX does degrade the filler and results in a higher percentage of coal strength failures.

During the testing period it was noted that the percentage of coal strength failures had been substantially reduced at the Manufacturing Center. In order to validate the actual percentage of failures, we were able to have returned to us from the Elk Warehouse in New Jersey, production from both the Manufacturing Center and Louisville produced during the last half of January. During this period we had experienced coal strength failures of about 70%. Retesting of the January production validated the original data of 70% failures at the Manufacturing Center.

There may be several factors which caused an improvement in coal strength failures as indicated by the tests. During late February, steps were initiated to control the percentage of ripper shorts introduced into the storage silos. By limiting the percentage of ripper shorts according to target, we found that a surplus of ripper shorts began accumulating, which probably indicates that we were feeding in too high a percentage.

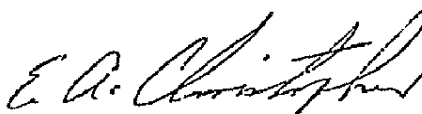
Even though the percentage of coal strength failures has been reduced at the Manufacturing Center, they are still higher than all other locations.

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Additional tests are now underway so that we may further define and hopefully correct the problem. Tests currently underway are as follows:

1. Individual Machine Tests
Every module at the Manufacturing Center will be tested.
2. Time Factor
Research and Development is currently testing cigarettes to determine whether time is a factor in coal strength failures.

In addition to the above work, a test is being set up to evaluate the B-Grader and Chimney Section of the Mark IX. When this is complete, we plan to evaluate the relationship of stem extraction to coal strength. We also plan to do further evaluations on Ecreteur Return when the other tests are finished. Even though the preceding tests indicate no significant difference based on percentage of Ecreteur Return, we still feel that additional testing is required in this area. In any event, testing will continue until the coal strength problem has been properly defined so that steps for improvement may be taken.



E. A. Christopher

EAC:stl

cc: Mr. B. A. Soyars ✓
Mr. W. G. Lloyd
Mr. J. A. Remington
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